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YEAR 2000 PROBLEM

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- For more information about these and related statistics, contact John Ovington on Canberra 02-62525189 or refer to the back cover of this publication.

NOTES

PURPOSE OF THE SURVEY	The Year 2000 Survey was conducted to provide statistics on the progress of Australian businesses in addressing the Year 2000 problem and factors relating to the Year 2000 problem. The results relate to the end of October 1998.	
SCOPE OF THE SURVEY	The survey covered private sector employing businesses in all industry sectors of the economy. However, for the Electricity, gas and water supply industry, the survey included public sector enterprises providing those services.	
CHANGES SINCE THE PRELIMINARY PUBLICATION	The inclusion of public sector management units coded to the Electricity, gas and water supply industry is the only major change since the preliminary results were released on 8 December 1998 (<i>Year 2000 Problem, Australia, Preliminary</i> Cat. no. 8151.0). There have been some revisions to the statistics previously published, mainly at finer levels of disaggregation, but the statistics in general align with those in the preliminary publication.	
SYMBOLS AND OTHER USAGES	ABS	Australian Bureau of Statistics
	ANZSIC	Australian and New Zealand Standard Industrial Classification
	RSE	Relative standard error
	*	estimate has a relative standard error between 25% and 50%
	**	estimate has a relative standard error greater than 50%
	—	nil or rounded to zero

Where figures have been rounded, discrepancies may occur between the sum of the components and total.

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SUMMARY OF FINDINGS

INTRODUCTION

The results presented in this publication are based on a survey of Australian businesses regarding their awareness of and progress in addressing the Year 2000 problem (also known as the millennium bug). The results reflect the status of the issue at the end of October 1998.

AWARENESS OF THE YEAR 2000 PROBLEM

There was a very high level of awareness of the Year 2000 problem within Australian business. Overall 93% of businesses were aware of the Year 2000 problem.

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YEAR 2000 AWARENESS AND INTENTIONS

	<i>Aware of the Year 2000 problem</i>	<i>Don't intend to take action on the Year 2000 problem</i>	<i>Intend to take action on the Year 2000 problem(a)</i>
PERCENTAGE OF ALL BUSINESSES (%)			
Industry(b)			
Agriculture	91	59	41
Mining	94	27	73
Manufacturing	92	38	62
Electricity, gas and water supply	100	3	97
Construction	92	50	50
Wholesale trade	98	19	81
Retail trade	90	47	53
Accommodation, cafes and restaurants	92	47	53
Transport and storage	92	53	47
Communication services	94	34	66
Finance and insurance	98	28	72
Property and business services	92	34	66
Education	95	34	66
Health and community services	96	31	69
Cultural and recreational services	93	40	60
Personal and other services	93	44	56
State and Territory(c)			
New South Wales	92	43	57
Victoria	92	50	50
Queensland	94	36	64
South Australia	93	37	63
Western Australia	95	33	67
Tasmania	88	46	54
Northern Territory	87	*43	*57
Australian Capital Territory	91	*26	74
Business Size(c)			
1 to 4 employees	91	46	54
5 to 19 employees	96	26	74
20 to 199 employees	99	8	92
200 employees or more	100	1	99
All businesses	93	42	58

(a) Includes businesses which have completed their Year 2000 work.

(b) See Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (Cat. no. 1292.0).

(c) Businesses in the Agriculture industry are excluded from the business size components, but are included in the State and Territory components and Australian totals.

Within industry the lowest level of awareness occurs in the Retail trade industry where 90% of businesses were aware of the Year 2000 problem. The Electricity, gas and water supply industry had the highest level of awareness at 100%.

AWARENESS OF THE YEAR
2000 PROBLEM *continued*

There is little difference in the awareness level between States.

As the number of employees in a business increased so did the level of awareness of the Year 2000 problem. The level ranged from 91% for micro businesses (1 to 4 employees) up to 100% for large businesses (200 or more employees).

In terms of economic contribution, those businesses which were not aware of the Year 2000 problem contribute only 3% to total employment and 2% to total sales of goods and services for all private sector employing businesses.

BUSINESSES TAKING
ACTION ON THE YEAR 2000
PROBLEM

Overall 58% of all Australian businesses have already taken, or intend to take, some action before January 2000 to identify or avoid Year 2000 problems.

This proportion varies considerably between industries, ranging from a low of 41% in the Agriculture industry to a high of 97% in the Electricity, gas and water supply industry.

Only half of the businesses in Victoria intend to take action on the Year 2000 problem compared to almost three quarters of the businesses in the ACT.

As with awareness of the problem, the proportion of businesses intending to take action on the Year 2000 problem also increases with business size, ranging from 54% in micro businesses (1 to 4 employees) to 99% in large businesses (200 or more employees).

Those businesses which intend to take action on the Year 2000 problem make a significant contribution to the Australian economy. These businesses employ 84% of the total employment for all private sector employing businesses and contribute 90% of the total sales of goods and services.

BUSINESSES NOT TAKING
ACTION ON THE YEAR 2000
PROBLEM

There were two main reasons given to explain why 42% of businesses don't intend to take action on the Year 2000 problem. Firstly, 25% of businesses reported that they did not think that they would be affected by the Year 2000 problem. Secondly, 16% were either unsure of what action to take or were unaware of the problem.

Businesses which don't intend to take action on the Year 2000 problem contribute 10% of the total sales of all businesses in scope of the survey and employ almost 16% of the total employment.

PROGRESS ON
ADDRESSING YEAR 2000
PROBLEM

Half of the businesses that intend to take action on the Year 2000 problem have yet to commence their Year 2000 work. Of those that have commenced work, about one half of them had already completed their work or were at the testing stage (13% of all businesses). A slightly greater number of them (16% of all businesses) had commenced their Year 2000 work but have yet to reach the testing stage.

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YEAR 2000 STATUS

	<i>Don't intend to take action on the Year 2000 problem</i>		<i>Intend to take action on the Year 2000 problem(a)</i>		
	<i>Unaware of or unsure about the effect of the Year 2000 problem on the business</i>	<i>Don't think the business will be affected by the Year 2000 problem</i>	<i>Yet to commence Year 2000 work</i>	<i>Commenced Year 2000 work</i>	<i>Testing or completed Year 2000 work</i>
<i>Employment</i>					
PERCENTAGE OF ALL BUSINESSES (%)					
Industry(b)					
Agriculture	21	38	26	9	6
Mining	13	14	27	32	14
Manufacturing	17	21	29	21	12
Electricity, gas and water supply	1	3	23	57	17
Construction	20	30	33	*9	*8
Wholesale trade	*6	13	28	29	24
Retail trade	20	27	25	13	15
Accommodation, cafes and restaurants	17	30	27	15	11
Transport and storage	21	32	25	10	12
Communication services	*15	18	26	18	22
Finance and insurance	*8	20	29	24	20
Property and business services	*14	20	33	18	16
Education	17	17	34	18	14
Health and community services	13	18	35	25	10
Cultural and recreational services	16	24	30	14	17
Personal and other services	13	31	35	14	*7
State and Territory(c)					
New South Wales	16	27	30	15	13
Victoria	18	32	25	13	12
Queensland	19	17	40	14	10
South Australia	*13	23	20	28	*16
Western Australia	*12	21	30	24	*13
Tasmania	*16	*30	*23	*7	*24
Northern Territory	**27	**16	*13	*24	**20
Australian Capital Territory	**19	**8	*46	*12	**16
Business Size(c)					
1 to 4 employees	19	27	29	12	13
5 to 19 employees	10	16	34	26	15
20 to 199 employees	4	4	28	46	17
200 employees or more	*1	*0	10	62	27
All businesses	16	25	30	16	13

(a) Includes businesses which have completed their Year 2000 work.

(b) See Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (Cat. no. 1292.0).

(c) Businesses in the Agriculture industry are excluded from the business size components, but are included in the State and Territory components and Australian totals.

PROGRESS ON
ADDRESSING YEAR 2000
PROBLEM *continued*

By industry, the Electricity, gas and water supply industry has the largest proportion of businesses that had already commenced work on the Year 2000 problem. Over half (57%) had commenced their Year 2000 work but had not reached the testing or completion stage. A further 17% were at the testing or completion stage. By way of contrast, half of the businesses in the Construction industry did not intend to take action and of those that did intend to take action, the majority had not yet commenced work (33% of all Construction businesses). The Agriculture and Personal and other services industries showed similar patterns to the Construction industry.

On a State basis, there was not much difference in the proportion of businesses which have reached the testing stage of their Year 2000 work. South Australia and Western Australia appear to have larger proportions of businesses which have commenced work (but not yet reached the testing stage). The estimate for the Northern Territory is also quite high, but this estimate is subject to a relatively high sampling error and as such is less reliable.

Not surprisingly larger businesses appear to be further advanced with their Year 2000 work. Over one quarter of all large businesses have reached the testing stage, compared to the overall ratio of 13%. Greater proportions of large businesses have also commenced work on the Year 2000 problem than smaller businesses.

Those businesses which are at the testing or completion stage of their Year 2000 work employ 27% of the total employment of all businesses in scope of the survey and contribute 28% of the sales of goods and services. Businesses which are yet to commence work on the Year 2000 problem contribute 20% of all employment and 15% of the sales of goods and services.

EXPECTED COMPLETION
DATE OF YEAR 2000 WORK

Virtually all of the businesses that intend to take action on the Year 2000 problem expect their Year 2000 work to be completed by December 1999, regardless of their industry, location or size.

Only 9% of large businesses expected to complete their Year 2000 work by the start of 1999, a proportion much smaller than for other business sizes. However, a further 61% of large businesses expect to finish their Year 2000 work by the middle of 1999.

Those businesses which expect to complete their Year 2000 work by January 1999 contribute 12% of the employment and sales of goods and services of all businesses in scope of the survey. Businesses which expect to complete their Year 2000 work during the first half of 1999, employ 43% of the total employment and contribute 50% of the sales of goods and services. Finally, those businesses expecting to complete their Year 2000 work during the second half of 1999 contribute just over one quarter of the sales of goods and services and employment of all private sector employing businesses.

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EXPECTED COMPLETION DATE OF YEAR 2000 WORK

	<i>Don't intend to take action on the Year 2000 problem</i>	<i>Intend to take action on the Year 2000 problem(a)</i>		
		<i>Expect to complete Year 2000 work(b)</i>		
		<i>By January 1999</i>	<i>Between January and June 1999</i>	<i>Between July and December 1999</i>
PERCENTAGE OF ALL BUSINESSES (%)				
Industry(c)				
Agriculture	59	9	12	18
Mining	27	18	33	21
Manufacturing	38	14	21	25
Electricity, gas and water supply	3	10	54	31
Construction	50	*8	23	17
Wholesale trade	19	28	28	23
Retail trade	47	16	19	17
Accommodation, cafes and restaurants	47	15	18	17
Transport and storage	53	13	21	14
Communication services	34	21	24	20
Finance and insurance	28	25	26	21
Property and business services	34	14	25	25
Education	34	19	24	21
Health and community services	31	14	27	26
Cultural and recreational services	40	17	21	20
Personal and other services	44	*8	23	24
State and Territory(d)				
New South Wales	43	15	23	18
Victoria	50	15	16	18
Queensland	36	13	23	25
South Australia	37	13	21	25
Western Australia	33	13	31	22
Tasmania	46	*24	*19	*11
Northern Territory	*43	**21	*21	**15
Australian Capital Territory	*26	*8	**22	*42
Business Size(d)				
1 to 4 employees	46	14	19	20
5 to 19 employees	26	18	30	24
20 to 199 employees	8	16	46	28
200 employees or more	1	9	61	28
All businesses	42	14	22	21

(a) Includes businesses which have completed their Year 2000 work.

(b) Approximately 1% of businesses do not expect to complete their Year 2000 work before January 2000.

(c) See Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (Cat. no. 1292.0).

(d) Businesses in the Agriculture industry are excluded from the business size components, but are included in the State and Territory components and Australian totals.

COSTS OF YEAR 2000 WORK

Businesses found it very difficult to provide estimates of the cost of becoming Year 2000 ready. About 40% of businesses intending to take action on the Year 2000 problem, were unable to estimate the cost to become Year 2000 ready.

Of those who were able to estimate the cost, the vast majority (80%) said that they intended to spend less than \$10,000. Only 1% of all businesses reported that they expected to spend more than \$100,000.

COSTS OF YEAR 2000
WORK *continued*

As would be expected the estimated costs to become Year 2000 ready increase as the size of the business increases. Half of all large businesses reported that they expected to spend more than \$100,000. On the other hand only 1% of all micro (1 to 4 employees) and other small (5 to 19 employees) businesses intend to spend more than \$100,000.

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ESTIMATED COST OF BECOMING YEAR 2000 READY

	<i>Intend to take action on the Year 2000 Problem(a)</i>				
	<i>Estimated Cost</i>				
	<i>Don't intend to take action on the Year 2000 problem</i>	<i>Unable to Estimate Cost</i>	<i>Under \$10,000</i>	<i>\$10,000-\$99,999</i>	<i>\$100,000 or more</i>
PERCENTAGE OF ALL BUSINESSES (%)					
Industry(b)					
Agriculture	59	22	17	*1	**1
Mining	27	18	37	10	7
Manufacturing	38	21	29	9	*3
Electricity, gas and water supply	3	22	24	28	22
Construction	50	24	23	*3	—
Wholesale trade	19	25	36	16	*3
Retail trade	47	25	22	6	—
Accommodation, cafes and restaurants	47	22	27	3	—
Transport and storage	53	20	20	6	*1
Communication services	34	36	26	3	*1
Finance and insurance	28	14	48	8	2
Property and business services	34	21	33	8	**3
Education	34	27	33	5	*1
Health and community services	31	28	34	7	—
Cultural and recreational services	40	25	30	*4	—
Personal and other services	44	27	28	1	—
State and Territory(c)					
New South Wales	43	24	25	6	*2
Victoria	50	21	23	5	1
Queensland	36	26	32	6	—
South Australia	37	20	29	11	**3
Western Australia	33	23	36	*6	*1
Tasmania	46	24	26	*3	—
Northern Territory	*43	*8	*33	*15	—
Australian Capital Territory	*26	*32	*31	**10	—
Business Size(c)					
1 to 4 employees	46	22	26	5	**1
5 to 19 employees	26	28	36	10	*1
20 to 199 employees	8	28	30	25	10
200 employees or more	1	19	7	24	49
All businesses	42	23	28	6	*1

(a) Includes businesses which have completed their Year 2000 work.

(b) See Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (Cat. no. 1292.0).

(c) Businesses in the Agriculture industry are excluded from the business size components, but are included in the State and Territory components and Australian totals.

YEAR 2000 ASSURANCES

Only 19% of businesses have sought any form of assurance (either verbal or written) from any of their suppliers, service providers or customers about their Year 2000 readiness.

Across industries, the rate of businesses having sought assurances varies considerably from a low of 11% in the Agriculture industry to a high of 71% in the Electricity, gas and water supply industry.

YEAR 2000 ASSURANCES
continued

Businesses with greater numbers of employees are more likely to have sought assurances about Year 2000 readiness from their suppliers, service providers or customers. Only 16% of micro businesses (1 to 4 employees) have sought assurances while 83% of large businesses (200 or more employees) have sought assurances. Also, large businesses are more inclined to seek written, rather than verbal, assurances.

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YEAR 2000 ASSURANCES AND CONTINGENCY PLANS

	<i>Type of assurances sought from any of the businesses suppliers, service providers or customers</i>			
	<i>Verbal assurances</i>	<i>Written assurances</i>	<i>Either verbal or written assurances</i>	<i>Started to develop contingency plan</i>
PERCENTAGE OF ALL BUSINESSES (%)				
Industry(a)				
Agriculture	9	*2	11	6
Mining	13	23	32	23
Manufacturing	11	9	17	14
Electricity, gas and water supply	25	62	71	42
Construction	*12	*4	*14	*6
Wholesale trade	16	15	29	20
Retail trade	11	*8	16	11
Accommodation, cafes and restaurants	9	8	15	12
Transport and storage	*14	*8	19	12
Communication services	*14	*10	23	16
Finance and insurance	15	23	34	21
Property and business services	15	12	25	16
Education	18	13	27	12
Health and community services	15	11	24	23
Cultural and recreational services	11	*6	14	*10
Personal and other services	12	*6	15	15
State and Territory(b)				
New South Wales	12	8	18	13
Victoria	12	8	18	12
Queensland	13	10	21	14
South Australia	17	*9	24	*14
Western Australia	13	*8	20	16
Tasmania	*15	*14	*18	*5
Northern Territory	**6	**29	*34	**14
Australian Capital Territory	**14	*8	*19	*14
Business Size(b)				
1 to 4 employees	12	6	16	11
5 to 19 employees	16	15	27	18
20 to 199 employees	24	39	53	30
200 employees or more	23	76	83	57
All businesses	13	9	19	13

(a) See Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (Cat. no. 1292.0).

(b) Businesses in the Agriculture industry are excluded from the business size components, but are included in the State and Territory components and Australian totals.

CONTINGENCY PLANNING

By late October 1998 only 13% of businesses had begun developing contingency plans in case disruptions occurred as a result of the Year 2000 problem. This rate varies considerably between industries rising from a low of 6% in the Agriculture and Construction industries to a high of 42% in the Electricity, gas and water supply industry. It also increases dramatically with business size, ranging from 11% of micro businesses (1 to 4 employees) to 57% of large businesses (200 or more employees).

USE AND READINESS OF SELECTED TECHNOLOGIES

The Year 2000 problem not only affects computers and computer systems, but can also affect a number of other types of technologies that are used in the daily operations of businesses. This survey attempted to measure the Year 2000 readiness of a range of technologies. Clearly the impact of the Year 2000 problem depends not only on the range of technologies used by a business but also upon the extent and importance of that use in the business. It was not possible to measure the level of technology dependence of a business in this survey. This should be taken into consideration when interpreting the results presented on technology use and the Year 2000 readiness of those technologies.

The types of technologies for which data was collected in the survey, and the frequency with which they are found in businesses are shown below.

- communications equipment—99%
- stand-alone PCs—65%
- “off the shelf” software—64%
- electronic banking—30%
- specially designed software—27%
- building management systems—22%
- equipment with embedded chips—18%, and
- networked computer systems—17%.

Not surprisingly, large businesses usually have more of these types of technology than do small businesses. About two thirds of micro businesses use stand alone PCs and ‘off the shelf’ software compared to 93% of large businesses. In addition large businesses are more likely to utilise networked computer systems and specially designed software, electronic banking facilities and other equipment with embedded chips. For example more than three quarters of large businesses have technologies with embedded chips, while only 14% of micro businesses have such technologies.

The proportion of businesses that use a particular technology which do not know the state of Year 2000 readiness of that technology varies depending upon the type of technology. For example, almost three quarters of those businesses using communications equipment have not assessed the Year 2000 readiness of that equipment. Conversely, less than one fifth of those businesses with networked computer systems have not assessed the Year 2000 readiness of the system.

The progress of businesses in becoming Year 2000 ready varies considerably for each technology. For the technologies, stand alone PCs, networked computer systems, off the shelf software and specially designed software approximately one quarter of businesses using that particular technology have completed their Year 2000 work and testing. However this ratio drops to around 10% for businesses using other technologies, ie communications equipment, electronic banking, equipment with embedded chips or building management systems.

	Year 2000 Readiness of the Technology					
	Technology being used	Don't know Year 2000 readiness	Assessing Year 2000 readiness	Commenced Year 2000 work	Testing Year 2000 work	Finished Year 2000 work and testing
PERCENTAGE OF ALL BUSINESSES (%)						
0-4 employees						
Stand-alone PCs	65	32	13	5	*2	13
Networked computer systems	14	2	3	*2	*1	5
'Off the shelf' software	63	35	12	4	*2	10
Specially designed software	23	9	5	*3	*2	5
Equipment with embedded chips	14	6	4	*1	*1	*1
Communications equipment	99	75	12	*3	*2	9
Electronic banking	27	17	4	*2	*1	3
Building management system	20	11	6	*1	—	*2
5-19 employees						
Stand-alone PCs	72	22	20	9	4	17
Networked computer systems	26	3	7	7	*1	8
'Off the shelf' software	70	27	19	7	3	14
Specially designed software	38	8	10	6	3	11
Equipment with embedded chips	27	14	6	2	*1	4
Communications equipment	99	62	21	4	*2	11
Electronic banking	37	17	11	2	*2	5
Building management system	30	18	7	*2	*1	3
20-199 employees						
Stand-alone PCs	85	13	22	20	9	22
Networked computer systems	58	3	13	20	9	14
'Off the shelf' software	87	18	23	18	10	19
Specially designed software	63	6	14	16	10	17
Equipment with embedded chips	48	9	18	10	5	6
Communications equipment	100	34	32	13	5	16
Electronic banking	63	16	23	9	5	10
Building management system	57	17	21	9	3	7
200 or more employees						
Stand-alone PCs	93	3	16	32	24	19
Networked computer systems	94	2	11	37	28	17
'Off the shelf' software	97	5	22	32	25	15
Specially designed software	87	2	13	31	27	15
Equipment with embedded chips	77	3	22	28	20	6
Communications equipment	100	11	27	31	15	17
Electronic banking	82	7	24	24	15	11
Building management system	86	7	29	28	15	8
All Businesses						
Stand-alone PCs	65	29	15	6	3	14
Networked computer systems	17	3	4	4	2	5
'Off the shelf' software	64	32	14	5	3	11
Specially designed software	27	8	6	4	2	6
Equipment with embedded chips	18	9	5	1	*1	2
Communications equipment	99	72	14	3	*2	9
Electronic banking	30	17	6	2	*1	3
Building management system	22	12	6	1	*1	2

(a) Businesses in the Agriculture industry are excluded from the employment size components, but are included in the 'All Businesses' total.

EXPLANATORY NOTES

DESCRIPTION	<p>The Year 2000 Survey collected information from businesses, at the end of October 1998, regarding their progress in addressing the Year 2000 problem within their business. It aims to provide a benchmark for all Australian businesses.</p>
SURVEY METHODOLOGY	<p>A questionnaire was mailed to approximately 10,000 businesses in all industries of the Australian economy, with the exception of Government administration and defence and Religious organisations. The sample was selected from the ABS' Business Register and was stratified by industry and size of business (determined using the number of employees). Within each stratum businesses were selected at random. The sample aimed to produce reliable estimates at the ANZSIC Division level for all business size groups.</p> <p>The survey was conducted on a voluntary basis and a response rate of 82% was achieved. While this is a little lower than the rate usually achieved for ABS surveys, the greater degree of non-response is not thought to have introduced any significant non-response biases. Estimates were monitored during the collection phase of the survey and stabilised after a response rate of 50% was achieved.</p>
SCOPE AND COVERAGE	<p>The statistics in this publication relate to all private sector employing businesses. For the Electricity, gas and water supply industry, the survey also included public sector businesses.</p>
STATISTICAL UNITS	<p>The business unit from which the information is collected and published is the management unit. The management unit is the highest level accounting unit within a business, having regard for industry homogeneity. In nearly all cases it coincides with the legal entity owning the business (ie. company partnership, trust, sole operator, etc.). However, in the case of large diversified businesses, there may be more than one management unit, each coinciding with a 'division' or 'line of business'. A 'division' or 'line of business' is identified where separate and comprehensive financial accounts are maintained.</p>
CLASSIFICATION BY INDUSTRY	<p>The statistics in this publication are classified by industry in accordance with the 1993 edition of the Australian and New Zealand Standard Industrial Classification (ANZSIC) (Cat. no. 1292.0). Each management unit is classified to a single industry. The industry allocated is the one which provides the main source of income for the management unit irrespective of whether a range of activities or a single activity is undertaken by the unit.</p>
CLASSIFICATION BY STATE AND TERRITORY	<p>The statistics are classified to a State or Territory on the basis of the location of the Head Office of the management unit about which data has been provided. Management units which operate in more than one State have only been included in this one State. As the number of multi-State management units is very small compared to the number of single State management units, this approximation is not likely to have significantly distorted the statistics presented by State in this publication.</p>

CLASSIFICATION BY SIZE OF BUSINESS

The statistics contained in this publication have been classified to size on the basis of the employment recorded on the ABS Business Register for each selected management unit. Data are presented by size using the following groups:

- Micro businesses—defined as having between 1 and 4 employees,
- Other small business—defined as having between 5 and 19 employees,
- Medium businesses—defined as having between 20 and 199 employees, and
- Large businesses—defined as having 200 or more employees.

RELIABILITY OF ESTIMATES

The estimates presented in this publication are subject to non-sampling and sampling error.

NON-SAMPLING ERROR

Non-sampling error can result from deficiencies in the ABS Business Register from which the sample was selected, non-response to the survey questionnaire, imperfections in data that are reported by respondents and errors in the process of aggregating results. Non sampling errors can occur in any type of collection. The extent to which non-sampling errors affect the results of the survey is unknown. Every effort has been made to minimise non-sampling errors through the careful design and testing of questionnaires, efficient operating procedures and testing of systems used to compile the statistics. As stated earlier, non-response bias is not expected to be a significant issue for this survey.

SAMPLING ERROR

The estimates in this publication are subject to sampling variability as they are based upon information obtained from a sample of businesses. Consequently an estimate may differ from the figure (the 'true' value) that would have been obtained if all units had been included in the survey. One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied by chance because only a sample of units was included.

Standard errors can be used to construct confidence intervals around the estimates. There are about two chances in three that the 'true' value will differ by less than one standard error from the estimate ie the confidence interval ranges from (estimate minus one standard error) to (estimate plus one standard error). There are about 19 chances in 20 that the 'true' value lies in the confidence interval ranging from (estimate minus two standard errors) to (estimate plus two standard errors).

The above rule gives a confidence interval which is symmetric about the estimate. In cases where the estimated percentages are close to 0% or 100%, it would be more correct to use a confidence interval which is not symmetric around the estimate. For an estimate close to 100%, the upper boundary of the confidence interval should be closer to the sample estimate than that suggested above, while the lower bound should be further from the sample estimate than suggested above. For estimates which are close to 0%, the confidence interval is skewed in the other direction.

SAMPLING ERROR *continued*

The following table contains estimates of standard errors from which confidence intervals may be constructed.

STANDARD ERRORS FOR YEAR 2000 AWARENESS AND INTENTIONS

	<i>Aware of the Year 2000 problem</i>	<i>Don't intend to take action on the Year 2000 problem</i>	<i>Intend to take action on the Year 2000 problem(a)</i>
	PERCENTAGE (%)		
Industry(b)			
Agriculture	1	2	2
Mining	2	3	3
Manufacturing	2	3	3
Electricity, gas and water supply	—	—	—
Construction	3	5	5
Wholesale trade	1	4	4
Retail trade	3	4	4
Accommodation, cafes and restaurants	2	3	3
Transport and storage	3	5	5
Communication services	3	5	5
Finance and insurance	1	5	5
Property and business services	3	5	5
Education	2	3	3
Health and community services	2	4	4
Cultural and recreational services	3	5	5
Personal and other services	3	5	5
State and Territory(c)			
New South Wales	1	3	3
Victoria	2	3	3
Queensland	2	3	3
South Australia	3	5	5
Western Australia	2	4	4
Tasmania	6	8	8
Northern Territory	12	16	16
Australian Capital Territory	8	11	11
Business Size(c)			
1 to 4 employees	1	2	2
5 to 19 employees	1	2	2
20 to 199 employees	—	1	1
200 employees or more	—	—	—
All businesses	1	1	1

(a) Includes businesses which have completed their Year 2000 work.

(b) See Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (Cat. no. 1292.0).

(c) Businesses in the Agriculture industry are excluded from the business size components, but are included in the State and Territory components and Australian totals.

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